

IN THE CLAIMS

1-14. (canceled)

15. (previously presented) The apparatus of claim 32 in combination with a control device.

16. (previously presented) The apparatus of claim 15 wherein said control device comprises a device for the extracorporeal treatment of blood.

17. (previously presented) The apparatus of claim 32 wherein said second optical sensor is integrally formed with said light source.

18. (previously presented) The apparatus of claim 32 including a housing, and wherein said light source, said first optical sensor and said second optical sensor are disposed in said housing.

19. (previously presented) The apparatus of claim 18 in combination with a control device.

20. (previously presented) The apparatus of claim 19 wherein said housing constitutes a portion of said control device.

21. (previously presented) The apparatus of claim 32 including a first waveguide for transmitting said radiated light from said light source to said predetermined location and for transmitting said radiated light reflected by said conduit to said second optical sensor, and a second waveguide for transmitting said radiated light which passes through said fluid conduit to said first optical sensor.

22. (previously presented) The apparatus of claim 21 in combination with a control device.

23. (previously presented) The apparatus of claim 22 including a housing, and wherein said light source, said first optical sensor, and said second optical sensor are disposed in said housing, and including a fluid conduit holder for holding said fluid conduit at said predetermined location, said fluid

conduit holder disposed on said housing, said first and second waveguides being integrated with said fluid conduit holder.

24. (previously presented) The apparatus of claim 22 wherein said first waveguide is disposed at a location adjacent to said fluid conduit whereby an air gap is created therebetween.

25. (previously presented) The apparatus of claim 32 wherein said light source generates said radiated light having a predetermined wavelength and a predetermined modulation.

26. (previously presented) The apparatus of claim 25 wherein said predetermined wavelength comprises a wavelength in the range of infrared radiation, and wherein said predetermined modulation comprising a substantially square pulse sequence.

27. (previously presented) The apparatus of claim 15 wherein said control device includes a control unit, and wherein said first and second optical sensors are electrically connected to said control unit, said first optical sensor providing a first signal and said second optical sensor providing a second signal.

28. (previously presented) The apparatus of claim 27 wherein said control device includes comparing means for comparing said first and second signals with predetermined signal values, whereby:

when said first signal is at a predetermined high level and said second signal is at a predetermined low level, said comparing means determines that said fluid conduit is not present at said predetermined location;

when said first signal is at a predetermined medium level and said second signal is at a predetermined high level, said comparing means determines that said fluid conduit is present at said predetermined location and said fluid is not present in said fluid conduit;

when said first signal is at a predetermined high level and said second signal is at a predetermined high level, said comparing means determines that said fluid conduit is present at said predetermined location and said fluid comprises a transparent fluid;

when said first signal is at a predetermined low level and said second signal is at a predetermined high level, said comparing means determines that said fluid conduit is present at said predetermined location and said fluid comprises an opaque fluid;

when said first signal is at a predetermined low level and pulses at a predetermined high level, and said second signal is at a predetermined high level, said comparing means determines that said fluid conduit is present at said predetermined location and said fluid comprises an opaque fluid containing air bubbles; and

when said first signal is at a predetermined low or medium level and said second signal is at a predetermined low level, said comparing means determines that an error condition exists.

29. (previously presented) The apparatus of claim 15 wherein said control device comprises a dialysis monitor.

30. (currently amended) A method for determining the presence of a fluid conduit at a predetermined location and at least one characteristic of said contents of said fluid conduit, said method comprising directing radiated light towards said predetermined location whereby when said fluid conduit is present at said predetermined location, said radiated light passes in a direction through said conduit, detecting a first portion of said radiated light passing through said fluid conduit and detecting a second portion of said radiated light which is reflected by an ~~outer wall~~exterior surface of said fluid conduit.

31. (previously presented) The method of claim 30 including comparing said first and second portions of said radiated light with predetermined values therefor whereby:

when said first portion of said radiated light is at a predetermined high level and said second portion of said radiated light is at a predetermined low level, determining that said fluid conduit is not present at said predetermined location;

when said first portion of said radiated light is at a predetermined medium level and said second portion of said radiated light is at a predetermined high level, determining that said fluid conduit is present at said predetermined location and said fluid is not present in said fluid conduit;

when said first portion of said radiated light is at a predetermined high level and said second portion of said radiated light is at a predetermined high level, determining that said fluid conduit is present at said predetermined location and said fluid comprises a transparent fluid;

when said first portion of said radiated light is at a predetermined low level and said second portion of said radiated light is at a predetermined high level, determining that said fluid conduit is present at said predetermined location and said fluid comprises an opaque fluid;

when said first portion of said radiated light is at a predetermined low level and pulses at a predetermined high level, and said second portion of said radiated light is at a predetermined high level, determining that said fluid conduit is present at said predetermined location and said fluid comprises an opaque fluid including air bubbles; and

when said first portion of said radiated light is at a predetermined low or medium level and said second portion of said radiated light is at a predetermined low level, determining that an error condition exists.

32. (currently amended) Apparatus for determining the presence of a fluid conduit having an ~~outer wall~~exterior surface comprising:

a light source disposed for generating radiated light in a direction towards a predetermined location, whereby when said fluid conduit is present at said predetermined location said radiated light passes in a direction through said fluid conduit;

a first optical sensor for detecting a first portion of said radiated light passing through said fluid conduit; and

a second optical sensor disposed for detecting a second portion of said radiated light, which is reflected by said ~~outer wall~~exterior surface of said fluid conduit.

33. (currently amended) A method for determining the presence of a fluid conduit with an ~~outer wall~~exterior surface at a predetermined location and at least one characteristic of said contents of said fluid conduit, said method comprising:

directing radiated light towards said predetermined location whereby when said fluid conduit is present at said predetermined location said radiated light passes in a direction through said conduit;

detecting a first portion of said radiated light passing through said fluid conduit and detecting a second portion of said radiated light which is reflected by said ~~outer wall~~exterior surface of said fluid conduit;

comparing said first and second portions of said radiated light with predetermined values therefor whereby:

when said first portion of said radiated light is at a predetermined high level and said second portion of said radiated light is at a predetermined low level, determining that

said fluid conduit is not present at said predetermined location;

when said first portion of said radiated light is at a predetermined medium level and said second portion of said radiated light is at a predetermined high level, determining that said fluid conduit is present at said predetermined location and said fluid is not present in said fluid conduit;

when said first portion of said radiated light is at a predetermined high level and said second portion of said radiated light is at a predetermined high level, determining that said fluid conduit is present at said predetermined location and said fluid comprises a transparent fluid;

when said first portion of said radiated light is at a predetermined low level and said second portion of said radiated light is at a predetermined high level, determining that said fluid conduit is present at said predetermined location and said fluid comprises an opaque fluid;

when said first portion of said radiated light is at a predetermined low level and pulses at a predetermined high level, and said second portion of said radiated light is at a predetermined high level, determining that said fluid conduit is present at said predetermined location and said fluid comprises an opaque fluid including air bubbles; and

when said first portion of said radiated light is at a predetermined low or medium level and said second portion of said radiated light is at a predetermined low level, determining that an error condition exists.

34. (currently amended) A method for determining the presence of a fluid conduit with an ~~outer wall~~ exterior surface at a predetermined location, said method comprising:

directing radiated light towards said predetermined location whereby when said fluid conduit is present at said

predetermined location said radiated light passes in a direction through said conduit;

detecting a first portion of said radiated light passing through said fluid conduit and detecting a second portion of said radiated light which is reflected by said ~~outer~~ wall-exterior surface of said fluid conduit;

comparing said first and second portions of said radiated light with predetermined values therefor whereby:

when said first portion of said radiated light is at a predetermined high level and said second portion of said radiated light is at a predetermined low level, determining that said fluid conduit is not present at said predetermined location.